

In response to the above rejections, Applicants have amended the claims which, when considered with the following remarks, is deemed to place the present application in condition for allowance or at least in better condition for appeal. Favorable consideration of all pending claims is respectfully requested.

In the first instance, Applicants respectfully submit that the Sequence Listing has been amended to correct certain typographical errors. More specifically, Applicants have corrected two typographical errors in the nucleotide sequence of SEQ ID NO: 6 (human bcl-w) at nucleotide position 301, 404 and 405, as indicated in the attached marked-up copy of the amended Sequence Listing. Furthermore, the protein sequence in SEQ ID NO: 7 has been amended to correct two clerical errors appearing at positions 101 and 135. In addition, Applicants have corrected certain typographical errors in the nucleotide sequence of SEQ ID NO: 8 (murine bcl-w), as indicated in the attached marked-up copy of the amended Sequence Listing. The protein sequence in SEQ ID NO: 9 has been amended to correct certain clerical errors, as indicated in the attached marked-up copy of the amended sequence listing.

Applicants respectfully submit that the foregoing amendment does not introduce new matter. More specifically, the protein sequence of SEQ ID NO: 7 (human bcl-w) as amended is set forth in Figure 8 as originally filed. The protein sequence of SEQ ID NO: 9 (murine bcl-w) as amended is set forth in Figure 1 as originally filed. In addition, these protein sequences find support in Figures 9A and 9B of the priority document, Australian Provisional Application PN8965, filed on March 27, 1996. A courtesy copy of such priority document is enclosed for the Examiner's convenience (**Exhibit A**). The nucleotide sequences of SEQ ID NO: 6 and SEQ ID NO: 8 as amended are also disclosed in Figure 9A and 9B, respectively, of the priority document.

Applicants further respectfully submit that the originally filed Figures 9A to 9B(iv), which set forth the nucleotide and protein sequences of human bcl-w and murine bcl-w, contain the same typographical errors as the original Sequence Listing. Accordingly, Applicants submit herewith substitute sheets of Figures 9A and 9B to replace the drawing sheets of Figures 9A to 9B(iv) originally filed. The substitute drawing of Figure 9B discloses the nucleotide sequence (SEQ ID NO: 6) and the encoded protein sequence (SEQ ID NO: 7) of human bcl-w. The substitute drawing of Figure 9B discloses the nucleotide sequence (SEQ ID NO: 8) and the encoded protein sequence (SEQ ID NO: 9) of murine bcl-w. These substitute sheets of drawings do not introduce new matter and are fully supported by the application as filed and by the priority document.

Furthermore, Applicants respectfully submit that the foregoing amendment does not introduce matters that require an additional search on the part of the Examiner. In particular, SEQ ID NO: 7 (human bcl-w) is only amended by two amino acid residues of the total 193 amino acid residues. SEQ ID NO: 9 (murine bcl-w) is only amended by 9 out of 193 amino acid molecules. Therefore, the Examiner's initial search for sequences having at least about 47% similarity to the original SEQ ID NO: 7 or original SEQ ID NO: 9, and for nucleotide sequences encoding proteins having at least about 47% similarity to the original SEQ ID NO: 7 or original SEQ ID NO: 9, would have been sufficient to capture the current corrected version of SEQ ID NO: 7 and SEQ ID NO: 9, as well as the corrected versions of the encoding nucleotide sequences SEQ ID NO: 6 and SEQ ID NO: 9.

Turning to the claims, the Examiner rejects claims 1-4 under 35 U.S.C. §112, first paragraph as allegedly not enabled. The Examiner admits that the specification is enabling for an isolated nucleic acid molecule comprising SEQ ID NO: 6 or 8 which encodes the amino acid sequence of SEQ ID NO: 7 or 9. However, the Examiner contends that the specification does

not provide enablement for all nucleic acid molecules encompassed by the claims. The Examiner states that the specification does not disclose any derivative of SEQ ID NO: 6 or 8, or a nucleic acid molecule encoding an amino acid sequence having at least 47% similarity to SEQ ID NO: 7 or 9, or a nucleic acid molecule which hybridizes under low stringency conditions to SEQ ID NO: 6 or 8 and which elicits a Bcl-w-related activity. It is the Examiner's opinion that it would take undue experimentation for those skilled in the art to practice the claimed invention.

Applicants respectfully disagree with the Examiner. Applicants respectfully submit that the present specification adequately teaches the molecules as claimed, including derivative and homologous sequences of SEQ ID NO: 6 or 8 that enhance cell survival. For example, the specification teaches the human bcl-w gene (SEQ ID NO: 6) and the murine bcl-w gene (SEQ ID NO: 8). The specification further teaches that the human Bcl-w protein and the murine Bcl-w share about 90% similarity. Moreover, the specification provides specific exemplification demonstrating that expression of the bcl-w gene enhances cell survival. See pages 35-36 of the specification. In light of the present teaching, those skilled in the art can isolate a nucleic acid molecule that either hybridizes to SEQ ID NO: 6 or 8, or encodes a protein that shares at least about 47% similarity to SEQ ID NO: 7 or 9, and determine whether the isolated molecule enhances cell survival. It is respectfully submitted that the experimentation required for those skilled in the art to make and use the claimed molecule is not undue.

However, in an effort to favorably advance the prosecution of the present case, Applicants have canceled claims 1-4 without prejudice, rendering the rejection thereof moot. Applicants reserve the right to pursue the subject matter of these canceled claims in a continuing application.

Applicants have also added claims 21-24, directed to nucleic acid molecules comprising SEQ ID NO: 6 or SEQ ID NO: 8, or encoding a protein having a sequence as set

forth in SEQ ID NO: 7 or SEQ ID NO: 9. As the Examiner has acknowledged in the Final Action, the specification is enabling for these nucleic acid molecules.

Accordingly, withdrawal of the rejection of claims 1-4 under 35 U.S.C. §112, first paragraph, is respectfully requested.

Claims 1 and 4 are rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 5,789,201 ("the '201 patent"). According to the Examiner, the '201 patent teaches nucleotide sequences encoding a bcl-2 homolog (bcl-y). The Examiner contends that the sequence search report provided by the Examiner shows that the human bcl-y gene of the '201 patent matches 97.4% to SEQ ID NO: 6 (human bcl-w) of the claimed invention, and 85% to SEQ ID NO: 8 (murine bcl-w) of the present invention; and that the human Bcl-y protein of the '201 patent matches 98.7% to SEQ ID NO: 7 (human Bcl-w).

It is respectfully submitted that the cancellation of claims 1-4 renders the rejection moot. Withdrawal of the rejection is therefore respectfully requested.

Applicants further submit that the nucleic acid molecules of claims 21-24 are not taught by the '201 patent. Applicants have provided herewith **Exhibit B**, illustrating the differences between the bcl-w sequences of the present application and the bcl-y sequences of the '201 patent. At page 1 of Exhibit B, the human bcl-w (SEQ ID NO: 7), the murine bcl-w (SEQ ID NO: 9), the human bcl-y of the '201 patent (SEQ ID NO: 4 of the '201 patent) and the rat bcl-y of the '201 patent are compared with one another. It is observed that the human bcl-w protein of the present application differs from the human bcl-y of the '201 patent at amino acid position 15, with Ala in human bcl-w and Glu in human bcl-y. The human bcl-w protein differs from the rat bcl-y of the '201 patent at amino acid position 7 ("A" in human bcl-w and "T" in rat bcl-y), position 124 ("E" in human bcl-w and "D" in rat bcl-y), and position 128 ("A" in human bcl-w and "T" in rat bcl-y). It is further observed that the murine bcl-w protein of the present

application differs from the human bcl-y of the '201 patent at amino acid position 7 ("T" in murine bcl-w and "A" in human bcl-y), position 15 ("A" in murine bcl-w and "E" in human bcl-y), and position 124 ("D" in murine bcl-w and "E" in human bcl-y). The murine bcl-w protein of the present application also differs from the rat bcl-y of the '201 patent at amino acid position 128 ("A" in murine bcl-w and "T" in rat bcl-y). Accordingly, protein sequences of SEQ ID NO: 7 and SEQ ID NO: 9 of the present application are not taught by the '201 patent, nor are the nucleic acid molecules encoding the protein of SEQ ID NO: 7 or SEQ ID NO: 9 (i.e., the subject matter of claims 21-22) taught by the '201 patent.

At page 2 of Exhibit B, the nucleotide sequence of the human bcl-w gene (SEQ ID NO: 6 of the present application) is compared with the human bcl-y and rat bcl-y genes of the '201 patent. Those nucleotides in the bcl-y genes which differ from the human bcl-w gene are indicated underneath the human bcl-w sequence. Clearly, the human bcl-w gene (SEQ ID NO: 6) of the present application is distinct from the human bcl-y and rat bcl-y genes of the '201 patent. Therefore, claim 23, drawn to a nucleic acid molecule comprising SEQ ID NO: 6, is not taught by the '201 patent.

Page 3 of Exhibit B illustrates the differences between the murine bcl-w gene (SEQ ID NO: 8) of the present application and the bcl-y genes of the '201 patent. Clearly, the murine bcl-w gene (SEQ ID NO: 8) of the present application is distinct from the human bcl-y and rat bcl-y genes of the '201 patent. Therefore, claim 24, drawn to a nucleic acid molecule comprising SEQ ID NO: 8 is not taught by the '201 patent.

Attached hereto is a marked-up copy of the amendment to the claims and to the Sequence Listing, entitled "Version with markings to show changes made"; a substitute paper and computer-readable copy of the Sequence Listing; a statement under §1.821(f) verifying that the content of the substitute paper copy and the substitute computer-readable copy of the

Sequence Listing are the same; substitute sheets for Figures 9A and Figures 9B; Exhibit A and Exhibit B.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



Frank S. DiGiglio
Registration No. 31,346

Scully, Scott, Murphy & Presser
400 Garden City Plaza
Garden City, New York 11530
Telephone: 516-742-4343
FSD/XZ:ab

Enclosures: Marked up version of the amendment to the claims and the Sequence Listing
Substitute paper and computer-readable copy of the Sequence Listing
Statement under §1.821(f)
Substitute sheets of Figures 9A and 9B
Exhibit A: Priority Document (Australian Provisional Application PN8965)
Exhibit B: Comparison of bcl-w and bcl-y sequences



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

Claims 1-4 have been canceled without prejudice.

Claims 21-24 have been added:

21. An isolated nucleic acid molecule, wherein said nucleic acid molecule encodes a protein comprising an amino acid sequence as set forth in SEQ ID NO: 7.

22. An isolated nucleic acid molecule, wherein said nucleic acid molecule encodes the amino acid sequence as set forth in SEQ ID NO: 9.

23. An isolated nucleic acid molecule wherein said nucleic acid molecule comprises the nucleotide sequence as set forth in SEQ ID NO: 6.

24. An isolated nucleic acid molecule wherein said nucleic acid molecule comprises the nucleotide sequence as set forth in SEQ ID NO: 8.

In the Sequence Listing:

The sequences in SEQ ID NO: 6-9 have been amended as follows:

<210> 6
 <211> 583
 <212> DNA
 <213> HUMAN

<220>
 <221> CDS
 <222> (1)..(579)

<400> 6

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 1 5 10 15

ttt gta ggt tat aag ctg agg cag aag ggt tat gtc tgt gga gct ggc 96
 Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
 20 25 30

ccc ggg gag ggc cca gca gct gac ccg ctg cac caa gcc atg cgg gca 144
 Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
 35 40 45

gct gga gat gag ttc gag acc cgc ttc cgg cgc acc ttc tct gat ctg 192
 Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
 50 55 60

gcg gct cag ctg cat gtg acc cca ggc tca gcc cag caa cgc ttc acc 240
 Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65 70 75 80

cag gtc tcc gac gaa ctt ttt caa ggg ggc ccc aac tgg ggc cgc ctt 288
 Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
 85 90 95

gta gcc ttc ttt ^ggtc ttt ggg gct gca ctg tgt gct gag agt gtc aac 336
 Val Ala Phe Phe ~~Leu~~ ^{Val} Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
 100 105 110

aag gag atg gaa cca ctg gtg gga caa gtg cag gag tgg atg gtg gcc 384
 Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
 115 120 125



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tac ctg gag acg cgg ctg ^{ct}~~g~~ gac tgg atc cac agc agt ggg ggc tgg 432
 Tyr Leu Glu Thr Arg Leu ~~Val~~ Asp Trp Ile His Ser Ser Gly Gly Trp
 130 135 140

gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gcg cgg 480
 Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
 145 150 155 160

cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg 528
 Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
 165 170 175

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc 576
 Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
 180 185 190

aag tgaa 583
 Lys

<210> 7
 <211> 193
 <212> PRT
 <213> HUMAN

<400> 7
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 1 5 10 15

Phe Val Gly Tyr Lys Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
 20 25 30

Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
 35 40 45

Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
 50 55 60

Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65 70 75 80

Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
 85 90 95
 Val Ala Phe Phe ^{Val}~~Leu~~ Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
 100 105 110
 Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Glu Trp Met Val Ala
 115 120 125
 Tyr Leu Glu Thr Arg Leu ^{Ala}~~Val~~ Asp Trp Ile His Ser Ser Gly Gly Trp
 130 135 140
 Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg
 145 150 155 160
 Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly
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 Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
 180 185 190

Lys

<210> 8

<211> 58⁷²

<212> DNA

<213> Mouse

<220>

<221> CDS

<222> (1)..(579)

<400> 8

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 1 ^{Ala} 5 10 15

ttt gta ggc tat agg ctg agg cag aag ggt tat gtc tgt gga gct ggc^c 96
 Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
 20 25 30

cct ggg gaa ggc cca gcc gcc gac ccg ctg cac caa gcc atg cgg gct 144
 Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
 35 40 45

gct gga gac gag ttt gag acc cgt ttc cgc cgc acc ttc tct gac ctg 192
 Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
 50 55 60

gcc gct cag cta cac gtg acc cca ggc tca gcc cag caa cgc ttc acc 240
 Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65 70 75 80

cag gtt tcc gac gaa ctt ttc caa ggg ggc cct aac tgg ggc cgt ctt 288
 Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
 85 90 95

gtg gca ttc ttt gtc ttt ggg gct gcc ctg tgt gct gag agt gtc aac 336
 Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
 100 105 110

aaa gaa atg gag cct ttg gtg gga caa gtc^g cag gat tgg atg^g gtg gcc 384
 Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp ~~Ile~~^{Met} Val Ala
 115 120 125

tac ctg gag aca cgt ctg gct gac tgg atc cac agc agt ggc ggc tgg 432
 Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp
 130 135 140

gcg ga^g ttc aca gct cta tac ggg gac ggg gcc ctg gag ga^g gca cgg 480
 Ala ~~Asp~~^{Glu} Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu ~~Asp~~^{Glu} Ala Arg
 145 150 155 160

cgt ctg cgg gag gg^g aac tgg gca tga^c gtg agt^g aca gtg ctg^c acg ggg 528
 Arg Leu Arg Glu Gly Asn Trp Ala ~~Val~~^{Ser} ~~Ser~~^{Val} ~~Thr~~^{Arg} ~~Val~~^{Thr} Val Thr Gly Ala
 165 170 175 → (to next page)

gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc 576
 Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser Lys
 180 185 190
 aag tga
 581 582

<210> 9
 <211> 1973
 <212> PRT
 <213> Mouse

<400> 9
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 Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly
 20 25 30
 Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala
 35 40 45
 Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu
 50 55 60
 Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr
 65 70 75 80
 Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu
 85 90 95
 Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn
 100 105 110
 Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp ~~Ile~~ ^{Met} Val Ala
 115 120 125
 Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp
 130 135 140
 Ala ~~Asp~~ ^{Glu} Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu ~~Asp~~ ^{Glu} Ala Arg
 145 150 155 160
 Arg Leu Arg Glu Gly Asn Trp Ala ~~Val~~ ^{Ser} ~~Ser~~ ^{Val} ~~Thr~~ ^{Arg} ~~Val~~ ^{Thr} ~~Val~~ ^{Leu} Thr Gly
 165 170 175
 Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser
 180 185 190
 Lys

atg	gcg	acc	cca	gcc	tcg	gcc	cca	gac	aca	cgg	gct	ctg	gtg	gca	gac	48
Met	Ala	Thr	Pro	Ala	Ser	Ala	Pro	Asp	Thr	Arg	Ala	Leu	Val	Ala	Asp	
1				5					10					15		
ttt	gta	ggt	tat	aag	ctg	agg	cag	aag	ggt	tat	gtc	tgt	gga	gct	ggc	96
Phe	Val	Gly	Tyr	Lys	Leu	Arg	Gln	Lys	Gly	Tyr	Val	Cys	Gly	Ala	Gly	
			20					25					30			
ccc	ggg	gag	ggc	cca	gca	gct	gac	ccg	ctg	cac	caa	gcc	atg	cgg	gca	144
Pro	Gly	Glu	Gly	Pro	Ala	Ala	Asp	Pro	Leu	His	Gln	Ala	Met	Arg	Ala	
		35					40					45				
gct	gga	gat	gag	ttc	gag	acc	cgc	ttc	cgg	cgc	acc	ttc	tct	gat	ctg	192
Ala	Gly	Asp	Glu	Phe	Glu	Thr	Arg	Phe	Arg	Arg	Thr	Phe	Ser	Asp	Leu	
	50					55					60					
gcg	gct	cag	ctg	cat	gtg	acc	cca	ggc	tca	gcc	cag	caa	cgc	ttc	acc	240
Ala	Ala	Gln	Leu	His	Val	Thr	Pro	Gly	Ser	Ala	Gln	Gln	Arg	Phe	Thr	
65					70					75					80	
cag	gtc	tcc	gac	gaa	ctt	ttt	caa	ggg	ggc	ccc	aac	tgg	ggc	cgc	ctt	288
Gln	Val	Ser	Asp	Glu	Leu	Phe	Gln	Gly	Gly	Pro	Asn	Trp	Gly	Arg	Leu	
				85					90					95		
gta	gcc	ttc	ttt	gtc	ttt	ggg	gct	gca	ctg	tgt	gct	gag	agt	gtc	aac	336
Val	Ala	Phe	Phe	Val	Phe	Gly	Ala	Ala	Leu	Cys	Ala	Glu	Ser	Val	Asn	
			100					105					110			
aag	gag	atg	gaa	cca	ctg	gtg	gga	caa	gtg	cag	gag	tgg	atg	gtg	gcc	384
Lys	Glu	Met	Glu	Pro	Leu	Val	Gly	Gln	Val	Gln	Glu	Trp	Met	Val	Ala	
		115					120					125				
tac	ctg	gag	acg	cgg	ctg	gct	gac	tgg	atc	cac	agc	agt	ggg	ggc	tgg	432
Tyr	Leu	Glu	Thr	Arg	Leu	Ala	Asp	Trp	Ile	His	Ser	Ser	Gly	Gly	Trp	
	130					135					140					
gcg	gag	ttc	aca	gct	cta	tac	ggg	gac	ggg	gcc	ctg	gag	gag	gcg	cgg	480
Ala	Glu	Phe	Thr	Ala	Leu	Tyr	Gly	Asp	Gly	Ala	Leu	Glu	Glu	Ala	Arg	
145					150					155					160	
cgt	ctg	cgg	gag	ggg	aac	tgg	gca	tca	gtg	agg	aca	gtg	ctg	acg	ggg	528
Arg	Leu	Arg	Glu	Gly	Asn	Trp	Ala	Ser	Val	Arg	Thr	Val	Leu	Thr	Gly	
				165					170					175		
gcc	gtg	gca	ctg	ggg	gcc	ctg	gta	act	gta	ggg	gcc	ttt	ttt	gct	agc	576
Ala	Val	Ala	Leu	Gly	Ala	Leu	Val	Thr	Val	Gly	Ala	Phe	Phe	Ala	Ser	
			180					185					190			
aag	tgaa															583
Lys																

Figure 9A

atg gcg acc cca gcc tca acc cca gac aca cgg gct cta gtg gct gac	48
Met Ala Thr Pro Ala Ser Thr Pro Asp Thr Arg Ala Leu Val Ala Asp	
1 5 10 15	
ttt gta ggc tat agg ctg agg cag aag ggt tat gtc tgt gga gct ggc	96
Phe Val Gly Tyr Arg Leu Arg Gln Lys Gly Tyr Val Cys Gly Ala Gly	
20 25 30	
cct ggg gaa ggc cca gcc gcc gac ccg ctg cac caa gcc atg cgg gct	144
Pro Gly Glu Gly Pro Ala Ala Asp Pro Leu His Gln Ala Met Arg Ala	
35 40 45	
gct gga gac gag ttt gag acc cgt ttc cgc cgc acc ttc tct gac ctg	192
Ala Gly Asp Glu Phe Glu Thr Arg Phe Arg Arg Thr Phe Ser Asp Leu	
50 55 60	
gcc gct cag cta cac gtg acc cca ggc tca gcc cag caa cgc ttc acc	240
Ala Ala Gln Leu His Val Thr Pro Gly Ser Ala Gln Gln Arg Phe Thr	
65 70 75 80	
cag gtt tcc gac gaa ctt ttc caa ggg ggc cct aac tgg ggc cgt ctt	288
Gln Val Ser Asp Glu Leu Phe Gln Gly Gly Pro Asn Trp Gly Arg Leu	
85 90 95	
gtg gca ttc ttt gtc ttt ggg gct gcc ctg tgt gct gag agt gtc aac	336
Val Ala Phe Phe Val Phe Gly Ala Ala Leu Cys Ala Glu Ser Val Asn	
100 105 110	
aaa gaa atg gag cct ttg gtg gga caa gtg cag gat tgg atg gtg gcc	384
Lys Glu Met Glu Pro Leu Val Gly Gln Val Gln Asp Trp Met Val Ala	
115 120 125	
tac ctg gag aca cgt ctg gct gac tgg atc cac agc agt ggc ggc tgg	432
Tyr Leu Glu Thr Arg Leu Ala Asp Trp Ile His Ser Ser Gly Gly Trp	
130 135 140	
gcg gag ttc aca gct cta tac ggg gac ggg gcc ctg gag gag gca cgg	480
Ala Glu Phe Thr Ala Leu Tyr Gly Asp Gly Ala Leu Glu Glu Ala Arg	
145 150 155 160	
cgt ctg cgg gag ggg aac tgg gca tca gtg agg aca gtg ctg acg ggg	528
Arg Leu Arg Glu Gly Asn Trp Ala Ser Val Arg Thr Val Leu Thr Gly	
165 170 175	
gcc gtg gca ctg ggg gcc ctg gta act gta ggg gcc ttt ttt gct agc	576
Ala Val Ala Leu Gly Ala Leu Val Thr Val Gly Ala Phe Phe Ala Ser	
180 185 190	
aag tga	582
Lys	

Figure 9B